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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)

Revision of the Commission's rules)
to ensure compatibility with)
enhanced 911 emergency)
calling systems)

CC Docket No. 94-102

RM-8143

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MAR 17 1995

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

To: The Commission

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REPLY COMMENTS OF VANGUARD CELLULAR SYSTEMS, INC.

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SUMMARY

Vanguard Cellular Systems, Inc. ("Vanguard") fully supports the Commission's objective of ensuring broad availability of 911 and enhanced 911 services to users of wireline and wireless telephone networks. Accordingly, basic 911 services should be made available by CMRS network operators within one year of the effective date of the order adopting new rules. However, implementing certain enhanced 911 features, such as detailed ALI, is neither economically nor technically feasible at the present time. Implementing such features in a series of progressive stages is the best approach for ensuring the development of enhanced 911 services over time.

Enhanced 911 features should be implemented in stages only after appropriate technical standards have been established. Technical standards must be established by industry and standards-setting bodies. Fully developed standards will allow for the development of state-of-the-art technologies, lower the cost of developing and manufacturing hardware and software, and hasten the implementation of enhanced 911 services over wireless networks.

Any technical standards adopted must be uniform and nationwide because mobile users need to be able to access enhanced 911 services wherever they are located. Vanguard supports the comments filed by Northern Telecom in this proceeding to the extent they reflect the importance of establishing uniform, nationwide standards as a predicate for implementing enhanced 911 services. Vanguard also agrees with Northern Telecom that the Commission must afford

adequate time for the development of such standards. Finally, Vanguard concurs with Northern Telecom's assessment that many complex tasks must be completed prior to the deployment of advanced 911 systems. Consequently, Vanguard urges the Commission to liberalize its schedule for requiring enhanced 911 capabilities in wireless systems.

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REPLY COMMENTS OF VANGUARD CELLULAR SYSTEMS, INC.

Vanguard Cellular Systems, Inc. ("Vanguard"), by its attorneys, hereby submits its reply comments in the above-referenced proceeding. As set forth in its initial comments, Vanguard fully supports the Commission's objective of ensuring broad availability of 911 and enhanced 911 services to users of wireline and wireless telephone networks whose health and safety may depend on 911 emergency service systems.^{1/}

Vanguard believes that all commercial mobile radio service (CMRS) providers should afford access to basic 911 services over their wireless systems as soon as reasonably practical. Ensuring enhanced 911 capabilities over mobile systems over time will also serve important public interest objectives, and Vanguard therefore endorses the Commission's efforts to explore the present and future compatibility of wireless systems with enhanced 911 services. However, difficult technical and financial constraints presently inhibit the implementation of certain enhanced 911

^{1/} See Comments of Vanguard Cellular Systems, Inc., January 9, 1995, filed in response to the Notice of Proposed Rulemaking ("Notice") in this proceeding.

features on mobile systems. Vanguard observed in its initial comments that these issues will need to be resolved in an orderly fashion over the next several years before advanced 911 capabilities become a reality. Consequently, Vanguard urged the Commission to encourage the development of technical standards and cost effective solutions for implementing enhanced 911 services in a wireless environment. Vanguard also urged the Commission to refrain from acting too hastily, or adopting rules or timetables that place unreasonable burdens on cellular or other CMRS carriers to implement enhanced 911 capabilities before standards work is done and advanced 911 technologies are ready to be deployed.

I. BACKGROUND

As a major cellular carrier with systems operating in 25 markets in the eastern half of the United States, Vanguard understands the important role that cellular and other mobile carriers can play in promoting public safety and health. Indeed, Vanguard has experienced first-hand the significant benefits mobile communications systems can afford when mobile users have access to emergency 911 services.^{2/} Consequently, Vanguard believes this proceeding is an important and timely vehicle for interested parties to address ways that the objectives set forth in the Notice can best be achieved.

As explained in its initial comments, Vanguard currently provides access to 911 services in all of its cellular markets for Vanguard's home customers

^{2/} See Section II B of Vanguard's initial Comments for a discussion of instances where access to emergency 911 services has aided persons in distress.

and for customers of other systems who roam in Vanguard markets. Providing access to basic 911 services over mobile radio networks is now technically feasible and affordable, and Vanguard therefore believes that requiring all CMRS carriers to afford access to basic 911 services would serve the public interest. Accordingly, Vanguard supports the Commission's proposal on basic 911 availability and agrees that this dialing feature should be made available by CMRS networks within one year of the effective date of the order adopting new rules.

The Commission is also properly concerned about the inability of mobile systems to interface with enhanced 911 systems like those deployed in wireline networks. However, as noted in Vanguard's initial comments, implementing certain enhanced 911 features, such as detailed user location information, is not presently feasible given technical and cost considerations surrounding the development of enhanced 911 systems. Implementing enhanced 911 features in a series of progressive stages is a valid approach for ensuring the development of enhanced 911 services over time. However, the adoption of uniform standards will be essential for developing state-of-the-art technologies that perform well in a complex mobile environment, and for facilitating the manufacture of affordable E-911 equipment and software.

While Vanguard supports the Commission's proposals for enhanced 911 services, it believes certain deadlines proposed in the Notice, particularly those for implementing advanced ALI, are unrealistic given the current state of technology. For this reason, Vanguard's comments recommended changes to certain milestones proposed by the Commission. Specifically -

- Vanguard supports the Commission's proposal for implementing 911 call priority, but believes a minimum of 2-3 years will be needed to establish standards so that 911 call priority mechanisms can be developed and implemented in a cost-effective way.
- Vanguard supports the Commission's efforts to encourage the development of sophisticated location technologies, but submits that the Commission should not require STEP I ALI features to be implemented until three years from the effective date of the order adopting new rules. STEP II ALI capabilities should not be required until five years from the order adopting new rules. Finally, the Commission should not establish a specific timetable for implementing STEP III ALI, but should commence a further rulemaking in five years to address implementing STEP III ALI.
- Finally, Vanguard believes that until standards bodies and manufacturers have progressed further toward developing functional products, it may be premature for the Commission to (1) adopt specific requirements for base and mobile equipment; and (2) adopt specific cut-off dates to govern specific equipment requirements. Moreover, to the extent requirements are adopted for subscriber equipment, the Commission should "grandfather" units in existence at the time such new requirements become effective.

In its initial comments, Vanguard emphasized that enhanced 911 features should be implemented in stages only after appropriate technical standards have been established. Having reviewed the comments of other participants in this proceeding, Vanguard is even more convinced that a lack of technical standards and economically-available technical solutions are major impediments to the realization of enhanced 911 capabilities over wireless networks. Consequently, Vanguard wishes to focus in this Reply pleading on the importance of encouraging standards work in this area, for the establishment of uniform technical standards can play a critical role in assisting the implementation of enhanced 911 services. Vanguard also wishes to

endorse the views expressed in this proceeding by Northern Telecom regarding the need for developing uniform, open standards in order to facilitate the early implementation of enhanced 911 services.

**II. ENHANCED 911 FEATURES SHOULD BE IMPLEMENTED
ONLY AFTER APPROPRIATE TECHNICAL
STANDARDS HAVE BEEN ESTABLISHED**

Vanguard suggested in its initial comments that any rules and timetables adopted by the Commission should adhere to certain fundamental principles, the first of which is that technical standards must be established by industry and standards-setting bodies prior to requiring enhanced 911 features to be implemented over wireless networks.^{3/} Developing standards is critical to the implementation of enhanced 911 services from the following perspectives:

- (1) Standards are needed to develop state-of-the-art technologies that will achieve the desired objective of making a variety of enhanced 911 services available in the mobile radio environment. There are many potentially competing location technologies, for example, but not all of them will function well or provide solutions to the unique complications surrounding

^{3/} Vanguard also recommended that the FCC acknowledge the following other fundamental principles in adopting any new rules and timetables: (1) that enhanced 911 features should be implemented in phases over time; (2) that solutions for implementing enhanced 911 services must recognize that there exists a substantial base of mobile phones in operation today; (3) that FCC-mandated solutions for implementing enhanced 911 features must not impede important market trends toward smaller size and greater portability of mobile terminals; and (4) that enhanced 911 requirements must be implemented in a way that minimizes costs for upgrading network equipment, and if subscriber equipment is involved in enhanced 911 solutions, minimizes costs for improvements to subscriber equipment. See Vanguard comments at 12-16.

mobile communications. Standards therefore are needed to ensure that enhanced 911 products and the networks on which they are installed will perform well in a dynamic context and will accommodate the requirements of mobile radio carriers, local exchange carriers, hardware and software suppliers, Public Safety Answering Points (PSAPs), and mobile system subscribers.

- (2) The development of standards is a key issue for equipment manufacturers because the existence of standards can substantially lower the cost of developing and manufacturing hardware and software.
- (3) Lower 911 equipment costs, in turn, can hasten the implementation of enhanced 911 services in wireless networks. Reduced 911 equipment costs are essential to mobile carriers, such as cellular operators, who will be required to install new equipment at cell sites throughout their systems to make them compatible with enhanced 911 services. Many cellular carriers, like Vanguard, are installing greater numbers of cell sites to meet customer demands, and this trend will only continue over time. Thus, installing enhanced 911 equipment at ever-increasing numbers of cell sites will be very expensive, and it is critical for mobile radio carriers that equipment and other costs associated with implementing enhanced 911 capabilities be minimized. Only a rational process that begins with the establishment of technical standards can keep these costs within reasonable limits.
- (4) Finally, standards should be universal, a factor that is particularly important in mobile communications to enable users to access enhanced 911 services wherever they are located and wherever they travel. In addition, standards must be established to cover multiple Radio Frequency (RF) access schemes since analog and digital technologies will be coexisting in cellular systems for many years to come.

Because the development of new technical standards or, where applicable, revisions to existing standards, often involves a lengthy process that can consume a minimum of 4-5 years, any rules or timetables which the Commission adopts should allow

sufficient time for industry and standards setting bodies to complete the important task of establishing enhanced 911 standards.

As noted above, Vanguard supports the comments filed by Northern Telecom in this proceeding, specifically insofar as they reflect the importance of establishing uniform, nationwide standards as a predicate for implementing enhanced 911 services.^{4/} Northern Telecom is a major equipment supplier for U.S. cellular networks, and is a primary vendor for the Vanguard systems. As the second largest telecommunications equipment manufacturer in the United States, Northern Telecom is knowledgeable as to which enhanced 911 services can be readily and rapidly deployed; and as to which enhanced 911 features confront more complicated technical obstacles requiring standards before such features can realistically be implemented. Considering the substantial work that must be done to introduce advanced 911 capabilities in a wireless environment, Northern Telecom has urged the Commission to afford adequate time for the development of uniform, open standards. Vanguard believes this is a rational approach that will lead to implementation of enhanced 911 services at the earliest possible time.

Northern Telecom observed in its comments that a number of state and local governments have begun to address enhanced 911 issues through laws, regulations or ordinances, but that these requirements have not been uniform. It states, in this regard, that businesses and equipment manufacturers are beginning to

^{4/} See Comments of Northern Telecom Inc., January 9, 1995 ("Northern Telecom Comments").

face a "patchwork quilt" of state and local requirements.^{5/} Northern Telecom highlights the advantages of establishing uniform, nationwide standards in response to these developments:

A uniform set of E-911 requirements imposed by the Commission, along with national technical standards, would benefit manufacturers because they could produce equipment that would be marketed throughout the country. Subscribers would also benefit because multiple sources of supply would likely be available. Costs should be lower, because there would not be a need to customize equipment for a particular locale. Moreover, telephone equipment would not have to be re-configured if it was moved to a different jurisdiction.^{6/}

Northern Telecom notes, in the case of mobile services, that the need for uniform national standards is even greater than in the wireline context. Cellular subscribers value highly the ability to "roam" and to use their handsets outside their home territory, and the desire for roaming will likely increase with the deployment of PCS. Thus, uniform national standards will be necessary to ensure that subscribers have the ability to access enhanced 911 service wherever cellular or PCS is offered.^{7/}

Northern Telecom also notes that the establishment of uniform, nationwide standards will lead to lower costs for manufacturers, which in turn will lead to lower prices for consumers.^{8/}

^{5/} Northern Telecom Comments, at 19.

^{6/} Northern Telecom Comments, at 19-20.

^{7/} Northern Telecom Comments, at 20.

^{8/} Northern Telecom Comments, at 21.

The Northern Telecom Comments confirm the views expressed by Vanguard and other parties in this proceeding, that the Commission must afford adequate time for the development of uniform, open standards before enhanced 911 capabilities can be implemented. Indeed, Northern Telecom identifies the following tasks, among others, that must be accomplished before advanced 911 systems can be deployed:

- New information and transmission requirements must be established in order to provide callback capabilities (ANI) and detailed location information (ALI). Today many existing wireline switching and trunk systems to the PSAP are only designed to pass on eight (8) digits of information. However, to properly identify roamers' Directory Numbers (DNs) for call-back capability, the system must be capable of transmitting ten (10) digits of information. To provide location information in longitude and latitude, an additional 12 to 14 digits will be required. These and other requirements will necessitate changes to wireline and wireless networks, and a new protocol procedure or standards and dedicated line system to the PSAP will likely need to be deployed.^{9/}
- Although callback information is achievable earlier than the proposed three years, it will not be possible to provide both call-back information and location information within the three year time frame. Callback and location information will require many more digits of information than the seven to ten digits that can readily be provided by the CAMA system. Uniform standards must be adopted before manufacturers can rationally design systems to send more than seven digits of information for 911 identification and/or location.^{10/}
- There is a need to develop a consensus as to uniform and non-proprietary methods for future E-911 location requirements.

^{9/} Northern Telecom Comments, at 45-46.

^{10/} Northern Telecom Comments, at 57-59.

PSAPs will not likely be capable of supporting a mix of incompatible location technologies. Moreover, a common method will speed E-911 development and greatly reduce the cost to the consumer.^{11/}

- Standard location information and formats will need to be established for connecting calls to the nearest PSAP.^{12/}
- Providing RF priority access from a mobile to a base station requires the development of a non-proprietary system solution to ensure interoperability throughout the country.^{13/}
- There is presently no universal solution for providing three-dimensional location capabilities. While Northern Telecom requests that this issue be addressed in a negotiated rulemaking, it notes that any solution could be extremely expensive, and it therefore urges the Commission not to impose a deadline for implementing this requirement before a negotiated rulemaking committee is able to consider it.

These and other complex tasks confirm the importance of developing technical standards as a priority matter so that enhanced 911 services can be implemented in an orderly and cost-effective manner. Vanguard believes that the comments submitted in this proceeding by major equipment manufacturers, such as Northern Telecom, should be afforded considerable weight by the Commission, especially insofar as they urge the establishment of uniform standards prior to requiring enhanced 911 features to be implemented over wireless networks.

Vanguard notes that many of the tasks identified by Northern Telecom cannot be completed within the time frames proposed in the Notice. Consequently, Vanguard

^{11/} Northern Telecom Comments, at 47.

^{12/} Northern Telecom Comments, at 49-51.

^{13/} Northern Telecom Comments, at 51.

urges the Commission to adopt a more liberal schedule for requiring enhanced 911 capabilities in wireless systems, consistent with the recommendations set forth in Vanguard's initial comments.

III. CONCLUSION

Ensuring broad availability of 911 and enhanced 911 services to users of wireline and wireless telephone networks is a worthy objective that deserves the support of all sectors of the communications industry, including system operators, equipment manufacturers, and public safety and health interests. Vanguard fully supports the Commission's initiative to explore ways as to how advanced 911 capabilities can become a reality. In Vanguard's view, the most important step the Commission can take for implementing enhanced 911 services in the wireless environment is to encourage the development of technical standards so that the difficult tasks ahead will be addressed in an orderly fashion, and so that cost-effective solutions can ultimately be achieved. Implementing enhanced 911 capabilities over wireless networks is achievable within a reasonably short period of time. As a practical matter, however, the more difficult 911 features, like advanced ALI, cannot be realized before standards work is completed and advanced 911 technologies are ready to be deployed.

Respectfully submitted,

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March 17, 1995

CERTIFICATE OF SERVICE

I, Deborah E. Buhner, a secretary at the law firm of Dow, Lohnes & Albertson, do hereby certify that on this 17th day of March, 1995, I have had hand delivered the foregoing "COMMENTS" to the following:

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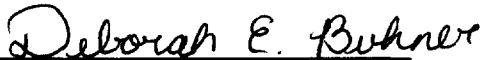
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